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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,422	08/08/2001	Osamu Tsujii	35.C15675	9933

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EXAMINER

GENCO, BRIAN C

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,422

Applicant(s)

TSUJII ET AL.

Examiner

Brian C Genco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 19-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 19-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Applicant's amendment filed December 16, 2003 has been fully considered by the Examiner but is not deemed persuasive.

Upon further search and consideration the Examiner is modifying the rejection previously presented with additional prior art as well as providing other new grounds of rejection. As such, Applicant's arguments are rendered moot.

Examiner's Notes

The official notice presented in the previous action stating that it is well known in the art to amplify signals output from an image sensor in order to have a more robust signal for transfer and processing was not traversed and is accordingly taken as an admission of fact.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of starting to supply "the electrical power to said read-out circuit ... at the same time of controlling said first power supply circuit to supply the electrical power to said sensor unit" in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Examiner notes that support for this claim feature is found on page 28, lines 21-25.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Claim Objections

Claim 25 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In regards to claim 25, Examiner notes that it is currently dependent on itself, namely claim 25 recites "An image sensing apparatus according to claim 25". For the purpose of examination Examiner is treating claim 25 as depending from claim 1.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 29 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In regards to claim 29, Examiner notes that there is no description in Applicant's disclosure of "said first power supply circuit to stop a supply of electrical power to said dead-out circuit." Examiner notes that it is explicitly claimed in claim 1 that said first power supply circuit is adapted to "supply electrical power to said sensor unit", not to said read-out circuit. In contrast it is further claimed in claim 1 that a second power supply circuit is adapted to "supply

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electrical power to said sensor unit.” As such, Examiner is treating claim 29 as reciting “said second power supply circuit to stop a supply of electrical power to said dead-out circuit.” As such, claim 29 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Examiner notes that claim 29 is a duplicate of claim 26 when edited as indicated above.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 19-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over (JP 11-151233 to Nonaka) in view of (USPN 5,060,069 to Aoki) in view of (USPN 4,675,747 to Hanma et al.).

In regards to claim 1 Nonaka discloses an image sensing apparatus comprising:
a radiation generating apparatus for generating radiation (e.g., element 10 of Fig. 1);
input means used for inputting at least one of an exposure preparation signal and an exposure request signal for said radiation generator (e.g., element 14 of Fig. 1 wherein the exposure preparation signal is the signal generated by the irradiation button as depicted in Figs. 4 and 6);
a sensor unit including a plurality of pixels for detecting an object image (e.g., element 22 of Fig. 1);

a read-out circuit adapted to read out signals from the plurality of pixels (e.g., elements 25 and 26 of Fig. 1);

a control circuit adapted to control said radiation generating apparatus, said sensor unit, and said read-out circuit (e.g., element 13 of Fig. 1);

Nonaka does not disclose nor preclude a first power supply circuit adapted to supply electric power to said sensor unit, a second power supply circuit adapted to supply electric power to said read-out circuit, or a control circuit adapted to control said radiation generating apparatus, said sensor unit, said first power supply circuit, said read-out circuit, and said second power supply circuit, wherein said control circuit controls said second power supply circuit to start a supply of the electrical power to said read-out circuit after or at the same time of controlling said first power supply circuit to supply the electrical power to said sensor unit.

Aoki discloses independently supplying power to the signal processing block (element 18 of Fig. 1) and the compression block (element 22 of Fig. 1) and only when they are being used so as to save power (column 3, lines 1-51), wherein the system control (element 40 of Fig. 1) supplies power to these blocks at the corresponding times of use. In other words the Aoki reference as a whole teaches supplying power to camera systems independently only when those systems are being used so as to save power.

Examiner notes that it is known in the art to only use the read-out circuit at specific time intervals as disclosed by Hanma et al., herein Hanma. Hanma discloses selectively allowing a scanning circuit to be applied to an image sensor only during times in which the scanning circuit is needed (e.g., column 5, lines 20-28 and lines 62-67).

Examiner further notes that Nonaka discloses an idling period as depicted in Fig. 4 and described in paragraph 0052.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have adapted Nonaka's invention so as to have a power supply control circuit to only supply power to the image sensor and scanning circuit when they are in use in order to save power. As such, there would be a first power supply circuit for controlling power to the sensor unit and a second power supply circuit for controlling power to the read-out circuit, note the switches 28, 30, 32, and 34 used to control the supply of power to the various components in Aoki's disclosure. Further, power would be supplied to the sensor portion from the refresh operation to the output operation of the image data and power would be supplied to the read-out circuit during the refresh and dummy read operations, then power would be terminated until the image data output operation as depicted in Figs. 4 and 6, thereby supplying power to said read-out circuit both after and at the same time of supplying power to said sensor unit.

In regards to claim 19 see paragraph 0054 of Nonaka's disclosure. Note that the irradiation end detection signal 57 is the "exposure completion signal".

In regards to claim 20 see lines 22-27 of paragraph 0053 and paragraph 0054. Note that phototimer 15 is a radiation exposure dose monitor.

In regards to claim 21 Nonaka discloses an image sensing apparatus according to claim 1, further comprising an exposure permission timer adapted to generate a radiation exposure permission signal for said radiation generating apparatus to generate radiation after a predetermined time elapses from the electrical power supply from said first power supply circuit to said sensor unit (e.g., Examiner notes paragraph 0053, lines 9-19. Note that there is a

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predetermined elapse of time from the start of the refresh operation, or the start of supplying power to said sensor unit, to the start of generating radiation wherein the exposure permission timer is part of the control unit 25. Note that the image sensing preparation completion signal 55 is the claimed radiation exposure permission signal), and

wherein said control circuit controls said second power supply circuit to start a supply of electrical power to said read-out circuit on the basis of a timing of generating a radiation exposure permission signal (e.g., Examiner notes that on the basis of receiving a radiation exposure permission signal the generation of radiation is started, wherein an exposure period is set (paragraph 0053, lines 22-27; Figs. 4 and 6), wherein on the basis of completion of the exposure time period the read-out operations are preformed and thus the power is again supplied to the read-out circuits).

In regards to claim 22 note that the exposure permission signal is generated on the basis of performing the refresh and dummy read operations, thereby creating a stable state of said sensor unit (paragraphs 0046-0050).

In regards to claim 23 note that the exposure permission signal is generated on the basis of performing the refresh and dummy read operations, thereby creating a stable state of an offset of said sensor unit, namely the offsets created by stray charges and currents (paragraphs 0046-0050).

In regards to claim 24 note that the offset amount of said sensor unit is checked by said exposure permission timer, namely control unit 25, through checking the completion of the refreshing and dummy read operations, wherein upon completion of the refreshing and dummy read operations the exposure permission signal is generated.

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In regards to claim 25 Examiner notes that as depicted in Figs. 4 and 6 on the basis of the irradiation button, or the exposure preparation signal, the refreshing and dummy read and image read-out operations are preformed wherein upon performing these operations power is supplied to the read-out circuit.

In regards to claim 26 note that based on the teaching of Aoki and Hanma, after the signals are read out of the image sensor then both the image sensor and read-out are not needed. Therefore as an extension of the teaching of Aoki and Hanma it would have been obvious to terminate power to both the image sensor and the read-out circuit after the read-out circuit finishes reading out all of the signals.

In regards to claim 27 as depicted in Figs. 4 and 6 the refresh and dummy read operations are preformed on the basis of the depression of the irradiation button, or the exposure preparation signal, wherein the power is supplied to the sensor unit upon starting the refresh operation as discussed above.

In regards to claim 28 note in Figs. 4 and 6 the offset correction is the refresh and dummy read operation wherein it is started on the basis of the irradiation button, or exposure preparation signal, and upon completion of the refresh and dummy read operations the radiation is generated.

In regards to claim 29 see Examiners notes on the rejection of claim 26.

In regards to claim 30 see element 26 of Fig. 1.

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Claims 1, 19-25, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over (JP 11-151233 to Nonaka) in view of (USPN 6,567,125 to Shimizu).

In regards to claim 1 Nonaka discloses an image sensing apparatus comprising:
a radiation generating apparatus for generating radiation (e.g., element 10 of Fig. 1);
input means used for inputting at least one of an exposure preparation signal and an exposure request signal for said radiation generator (e.g., element 14 of Fig. 1 wherein the exposure preparation signal is the signal generated by the irradiation button as depicted in Figs. 4 and 6);

a sensor unit including a plurality of pixels for detecting an object image (e.g., element 22 of Fig. 1);

a read-out circuit adapted to read out signals from the plurality of pixels (e.g., elements 25 and 26 of Fig. 1);

a control circuit adapted to control said radiation generating apparatus, said sensor unit, and said read-out circuit (e.g., element 13 of Fig. 1);

Nonaka does not explicitly disclose nor preclude a first power supply circuit adapted to supply electric power to said sensor unit, a second power supply circuit adapted to supply electric power to said read-out circuit, or a control circuit adapted to control said radiation generating apparatus, said sensor unit, said first power supply circuit, said read-out circuit, and said second power supply circuit, wherein said control circuit controls said second power supply circuit to start a supply of the electrical power to said read-out circuit after or at the same time of controlling said first power supply circuit to supply the electrical power to said sensor unit.

Examiner notes that it is implicit to have a first power supply circuit to supply power to said sensor unit in order for it to work.

Shimizu discloses a read-out circuit and a second power supply circuit, elements 62 and 68 of Fig. 5 wherein a control circuit starts the supply of power to said read-out circuit after power is supplied to said sensor unit in order to reduce noise and heat generated by the image sensor (column 5, lines 14-44; column 6, lines 5-47). Examiner notes that using an output amplifier in the output of an image sensor is extremely well known in the art in order to generate more robust signals. Official notice is taken. Therefore it would have been obvious to one of ordinary skill in the art to have added an output amplifier to Nonaka's image sensor in order to generate more robust signals. As such, it would have been obvious to one of ordinary skill in the art to have further added the second power supply and control circuit to Nonaka's invention in order to reduce noise and heat generated by the image sensor.

In regards to claim 19 see paragraph 0054 of Nonaka's disclosure. Note that the irradiation end detection signal 57 is the "exposure completion signal".

In regards to claim 20 see lines 22-27 of paragraph 0053 and paragraph 0054. Note that phototimer 15 is a radiation exposure dose monitor.

In regards to claim 21 Nonaka discloses an image sensing apparatus according to claim 1, further comprising an exposure permission timer adapted to generate a radiation exposure permission signal for said radiation generating apparatus to generate radiation after a predetermined time elapses from the electrical power supply from said first power supply circuit to said sensor unit (e.g., Examiner notes paragraph 0053, lines 9-19. Note that there is a predetermined elapse of time from the start of the refresh operation, or the start of supplying

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power to said sensor unit, to the start of generating radiation wherein the exposure permission timer is part of the control unit 25. Note that the image sensing preparation completion signal 55 is the claimed radiation exposure permission signal), and

wherein said control circuit controls said second power supply circuit to start a supply of electrical power to said read-out circuit on the basis of a timing of generating a radiation exposure permission signal (e.g., Examiner notes that on the basis of receiving a radiation exposure permission signal the generation of radiation is started, wherein an exposure period is set (paragraph 0053, lines 22-27; Figs. 4 and 6), wherein on the basis of completion of the exposure time period the read-out operations are preformed and thus the power is supplied to the read-out circuit).

In regards to claim 22 note that the exposure permission signal is generated on the basis of performing the refresh and dummy read operations, thereby creating a stable state of said sensor unit (paragraphs 0046-0050).

In regards to claim 23 note that the exposure permission signal is generated on the basis of performing the refresh and dummy read operations, thereby creating a stable state of an offset of said sensor unit, namely the offsets created by stray charges and currents (paragraphs 0046-0050).

In regards to claim 24 note that the offset amount of said sensor unit is checked by said exposure permission timer, namely control unit 25, through checking the completion of the refreshing and dummy read operations, wherein upon completion of the refreshing and dummy read operations the exposure permission signal is generated.

In regards to claim 25 Examiner notes that as depicted in Figs. 4 and 6 on the basis of the irradiation button, or the exposure preparation signal, the image read-out operation is preformed wherein upon performing this operation power is supplied to the read-out circuit.

In regards to claim 30 note that element 62 of Shimizu's disclosure is a preamplifier.

Conclusion

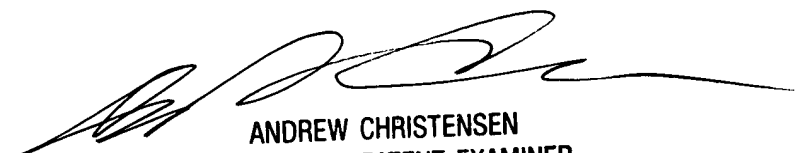
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Thursday 7:30am to 4:30 pm and every other Friday 7:30am to 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 703-308-4357.

Brian C Genco
Examiner
Art Unit 2615

February 4, 2004


ANDREW CHRISTENSEN
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